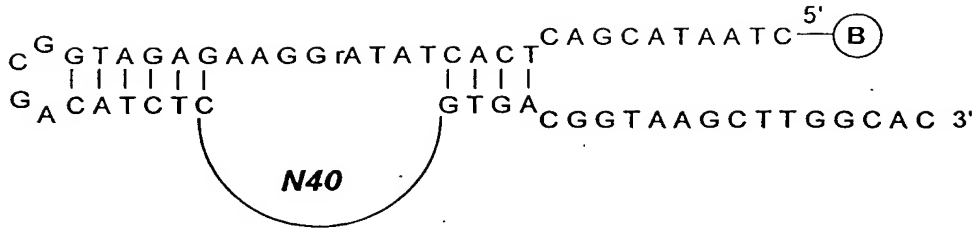
5'
B
CAGCATAATC
GTAGAGAAGGrATATCACT
CATCTC
GTGA
CGGTAAGCTTGGCAC 3'
N40

FIG. 1A

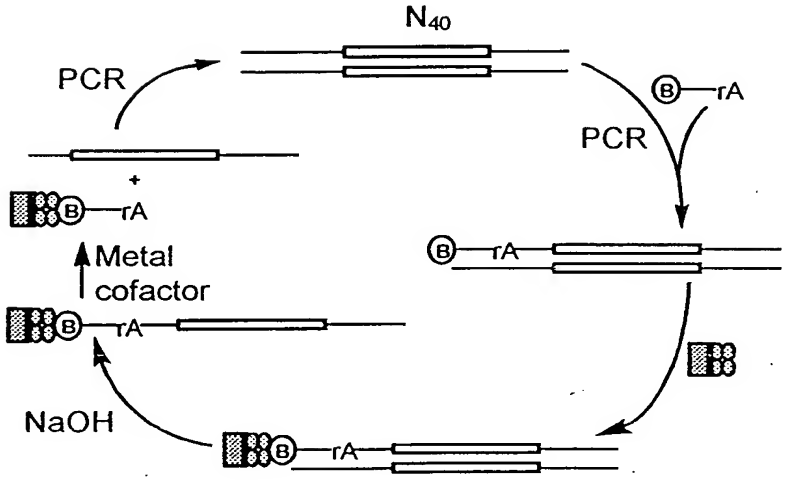
N40
PCR
PCR
B
rA
Metal
cofactor
NaOH

FIG. 1B

Zn-DNA

5'- CTGCAGAATTCTAATACGACTCACTATAGGAAGAGATGGCGAC

Class I (used for reselection)

#5,6,7,9,21,25,29,43,47

ATCTC TTTTGTCAGCGACTCGAAATAGTGTGTTGAAGCAGCTCTA *GTGAC*

Class II

#2,10,17,20,24,31,37,39

AGCCA -TAGTTCTACCAGCGGTTCGAAATAGTGAAGTGTTCGTGA *CTATC*

#3 *GGCCA* -TAGTTCTACCAGCGGTTCGAAATAGTGAAATGTTCGTGA *CTATC*

#4 *GCCAG*ATTAGTTCTACCAGCGGTTCGAAATAGTGAAATGTTCGTGA *CTATC*

Class III

#15,18,19,34,35,38,50

ATCTC CAAAGATGCCAGCATGCTATTCTCCGAGCCGGTCGAAATA *GTGAC*

#14 *ATCTC* CAAAGATGCCTGCATGCTATTCTCCGAGCCGGTCGAAATA *GTGAC*

Unclassified

#36 *ATCTC* GTCTCCGAGCCGGTCGAAATAGTCAGGTGTTTCTATTCGG *GTGAC*

#40 *ATCAC* CTTCTCCGAGCCGGTCGAAATAGTAGTTTTTAGTATATCT *GTGAC*

#42 *ATCTC* AGGTGTTGGCTGCTCTCGCGGTGGCGAGAGGTAGGGTGAT *GTGAC*

GGTAAGCTTGGCAC-3'

FIG. 2

Co-DNA

5'-CTGCAGAATTCTAATACGACGCACTATAGGAAGAGATGGCGAC

Class I (used for reselection)

#18,15,34
ATCTC TTGTATTAGCTACACTGTTAGTGGATCGGGTCTAATCTCG *GTGAC*
#1 *GTCTC* TTGTATTAGCTACACTGTTAGTGGATCGGGTCTAATCTCG *GTGAC*
#25 *ATCTC* CTGTATTAGCTACACTGTTAGTGGATCGGGTCTAATCTCG *GTGAC*
#16 *ATCTC* TTGTATTAGCTACACTGTTAGTGGGAACGTTATCAT-TCG *GTGAC*

Class II

#2,4,7,23,26
ATCTC TTGACCCAAGAAGGGGTGTCAATCTAATCCGT CAACCATG
#8 *ATCTC* TTGACCCAAGAAGGGGTGTCAATCAAATCCGT CAACCATG
#17 *ATCTC* TTGACCCAAGAAGGGGTGTCAATCTAATCCGTACAACCATG ACGGTAAG
#27 *ATCTC* TTGACCCAAGAAGGGGTGTCAATCTAATCCGT CAAGGATG CGGTAAG

Class III

#5 *ATCTC* AGGTGTTGGCTGCTCCCGCGGTGGCGGGAGGTAGGGTGAT *GTGAC*
#11 *ATCTC* AGGTGTTGGCATCTCCCGCGGTGGCGAGAGGTAGGGTGAT *GTGAC*
#6 *ATCTC* AGGTGTTGGCTGCTCTCGCGGTGGCGAGAGGTAGGGTCAT *GTGAC*

Unclassified

#21 *ATCTC* GCAGTCGAAGCTTCACTGTTAGTGCGGACGGGTAGACTTC *GTGAC*
#29 *ATTTC* TTCTGAATCCTCAATGTTAGTGGACCTAGTCGTAGTCGAT *GTGAC*
#12 *ATCTC* GGAGCCAGTTAGCATAATCTTCTGAATCCTCAATGTTAGT *GTGAC*
#10 *ATCTC* GGTGTTGGCTGGATAGAGCCGGTAGGCCCTATCGTAGGGT *GTGAC*
#1 *GTCTC* TTTTGTCCGCGACTCGAAATAGTGTGTTGAAGCAGCTCTA *GTGAC*
#28 *AGCCA* TAGTTCTACCAGCGGTTCGAAATAGTGAAGTGTTCGTGACTATCG GTAA

GGTAAGCTTGGCAC-3'

FIG. 3

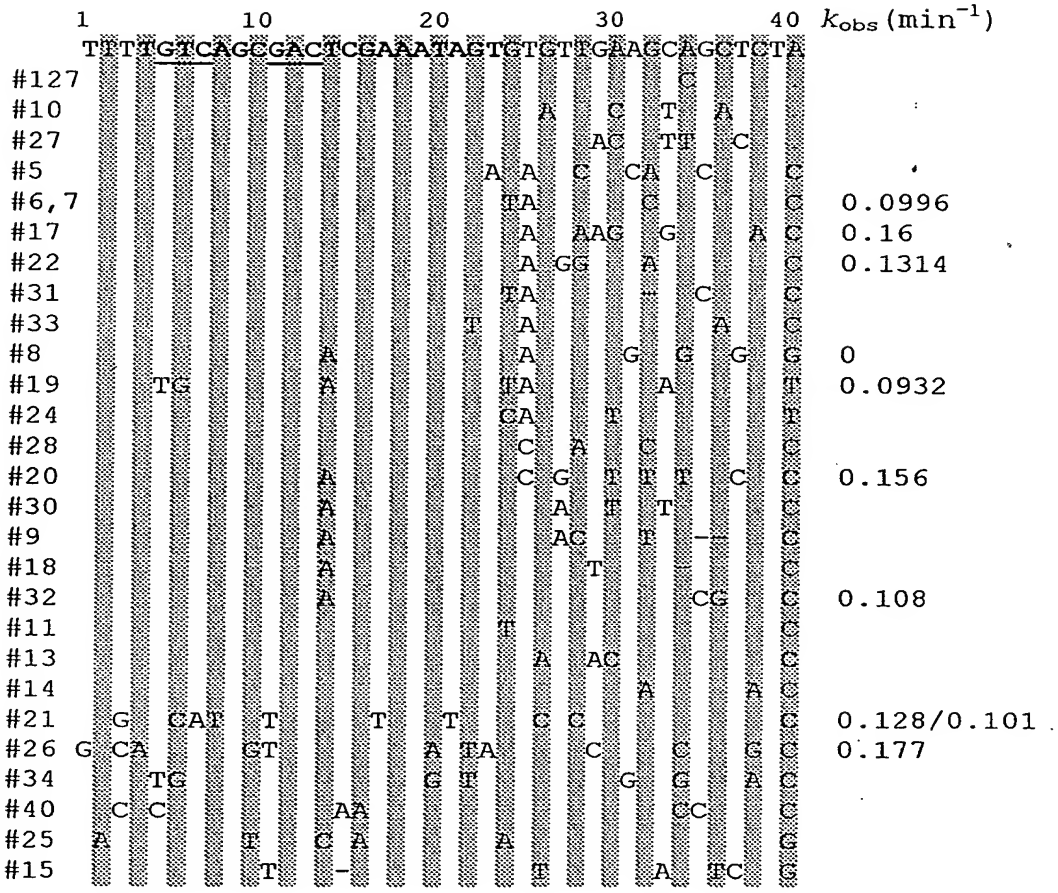
1
10
20
30
40
k_{obs} (min^{-1})
TTTTGTCAGCGACTCGAAATAGTGTGTTGAAGCAGCTCTA
#127
#10
#27
#5
#6,7
#17
#22
#31
#33
#8
#19
#24
#28
#20
#30
#9
#18
#32
#11
#13
#14
#21
#26
#34
#40
#25
#15
0.0996
0.16
0.1314
0
0.0932
0.156
0.108
0.128/0.101
0.177

FIG. 4

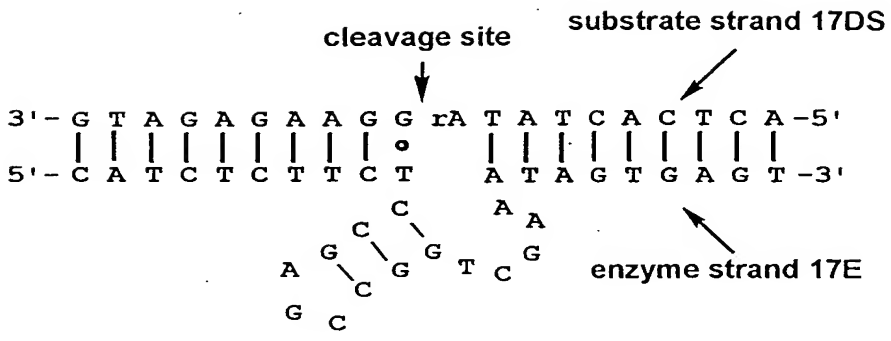
cleavage site
substrate strand 17DS
3'-G T A G A G A A G G rA T A T C A C T C A-5'
5'-C A T C T C T T C T A T A G T G A G T-3'
enzyme strand 17E

FIG. 5

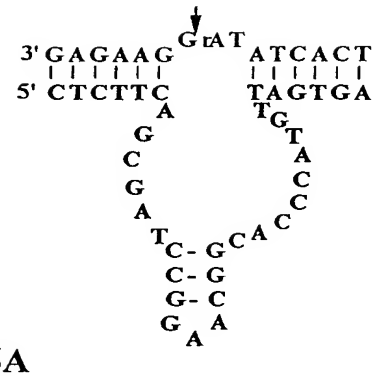

FIG. 6A

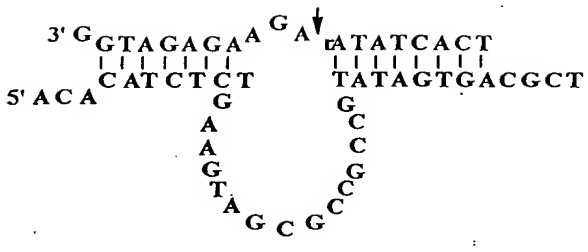

FIG. 6B

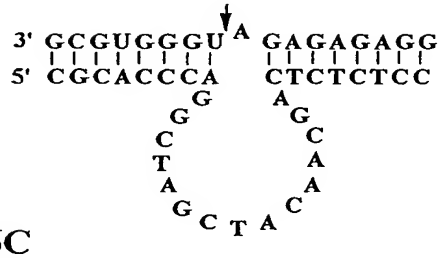

FIG. 6C

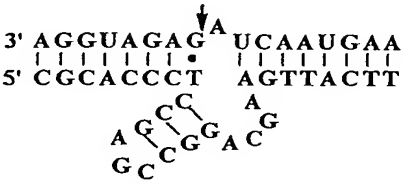

FIG. 6D

FIG. 6E

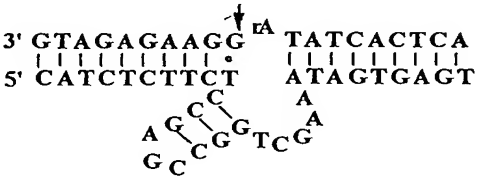

FIG. 6F

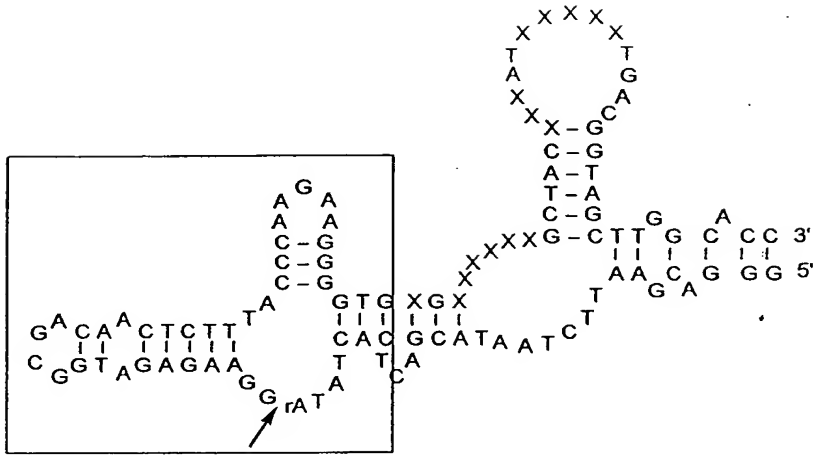

FIG. 7A

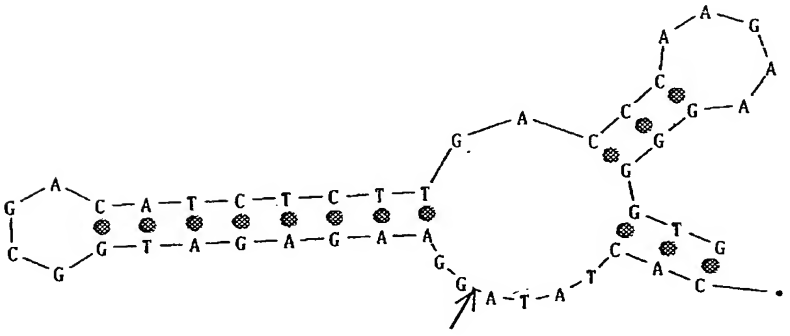

FIG. 7B

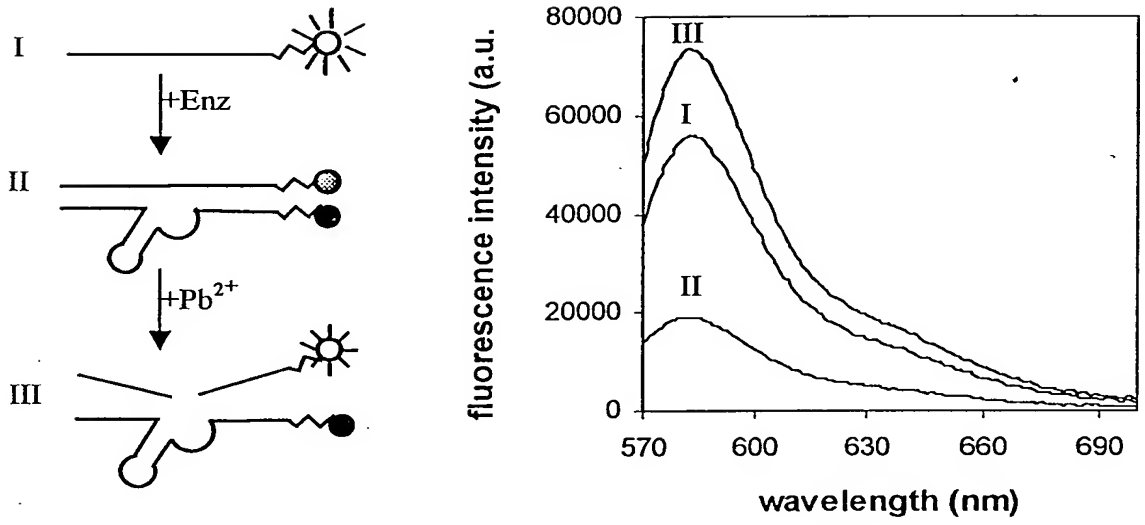
I
+Enz
II
+Pb2+
III
fluorescence intensity (a.u.
80000
60000
40000
20000
0
III
I
II
570
600
630
660
690
wavelength (nm)

FIG. 8

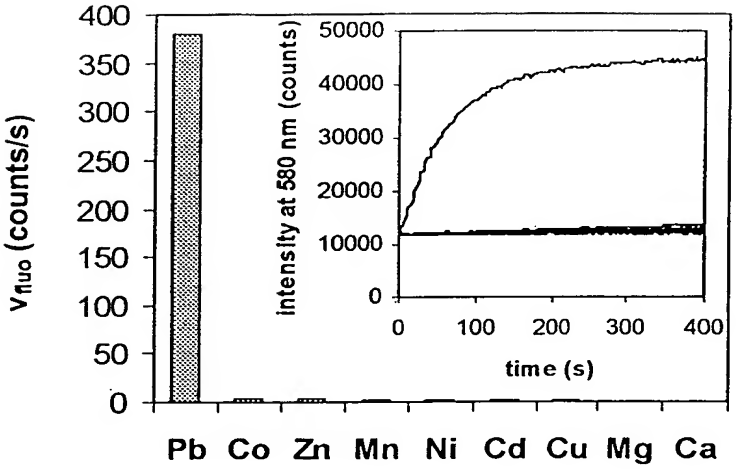
400
350
300
250
200
150
100
50
0
v_{fluo} (counts/s)
Pb Co Zn Mn Ni Cd Cu Mg Ca
intensity at 580 nm (counts)
50000
40000
30000
20000
10000
0
0 100 200 300 400
time (s)

FIG. 9A

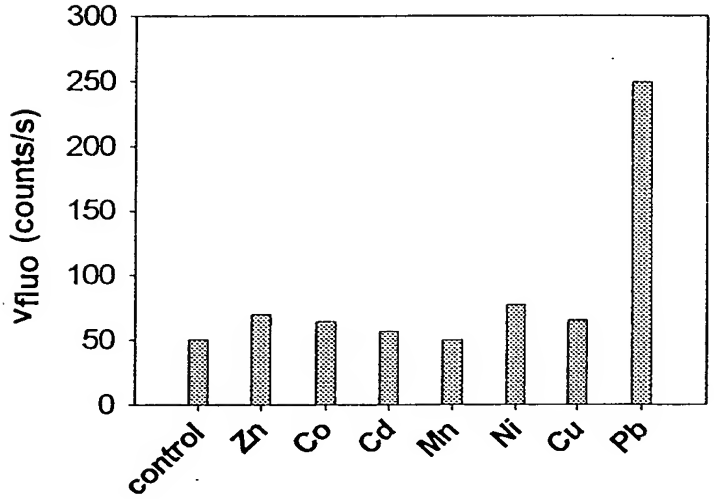
300
250
200
150
100
50
0
Vfluo (counts/s)
control
Zn
Co
Cd
Mn
Ni
Cu
Pb

FIG. 9B

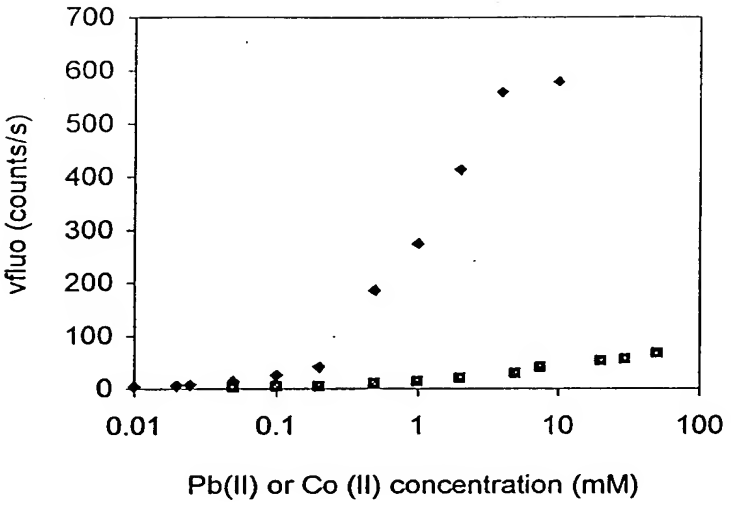

FIG. 10A

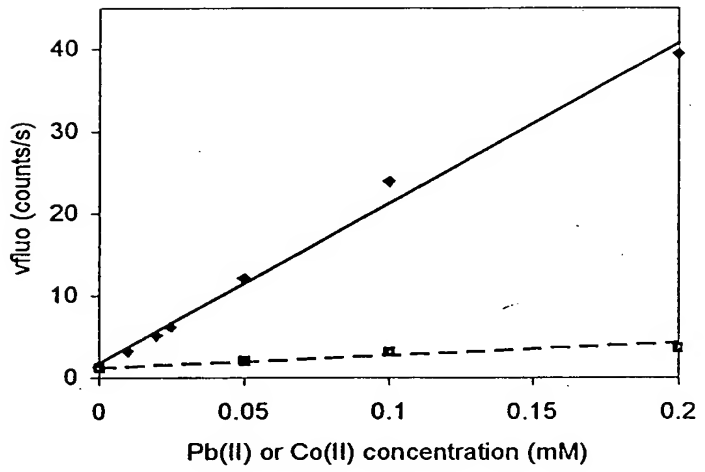

FIG. 10B

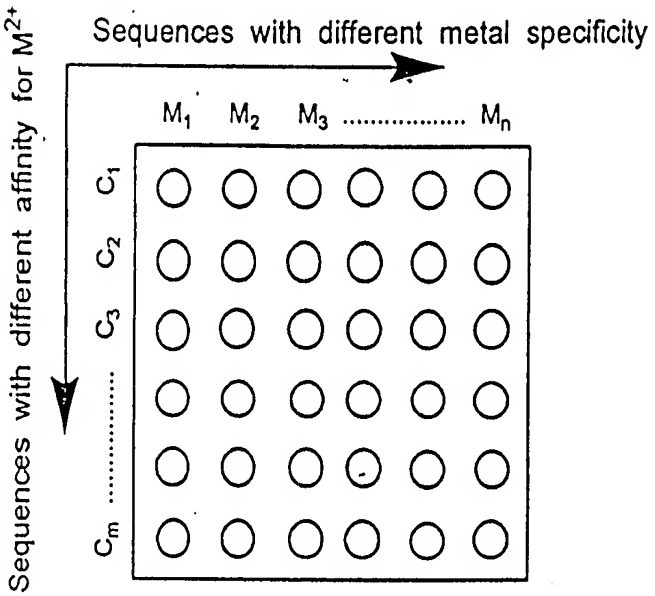

FIG. 11A

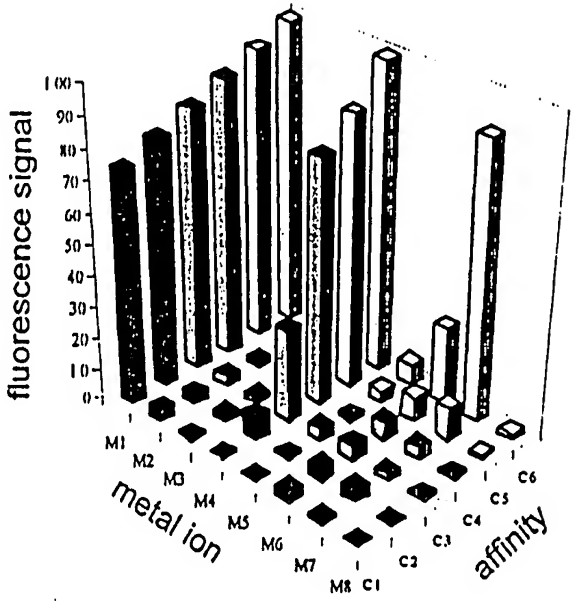

FIG. 11B

HYPOTHETICAL SAMPLE RESULT